

# Service Manual

**Pioneer**



ORDER NO.  
RRV2125

## RF DEMODULATOR RFD-1

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Type | Model | Power Requirement | Remarks |
|------|-------|-------------------|---------|
|      | RFD-1 |                   |         |
| MY   | O     | AC220 - 230V      | —       |

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# 1. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.



## WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.


## NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

## REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

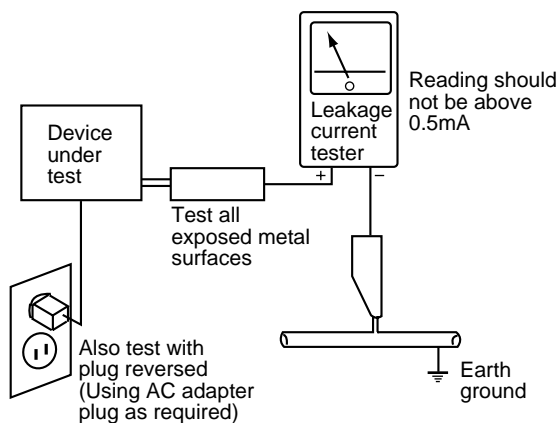
## (FOR USA MODEL ONLY)

### 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

#### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

### 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

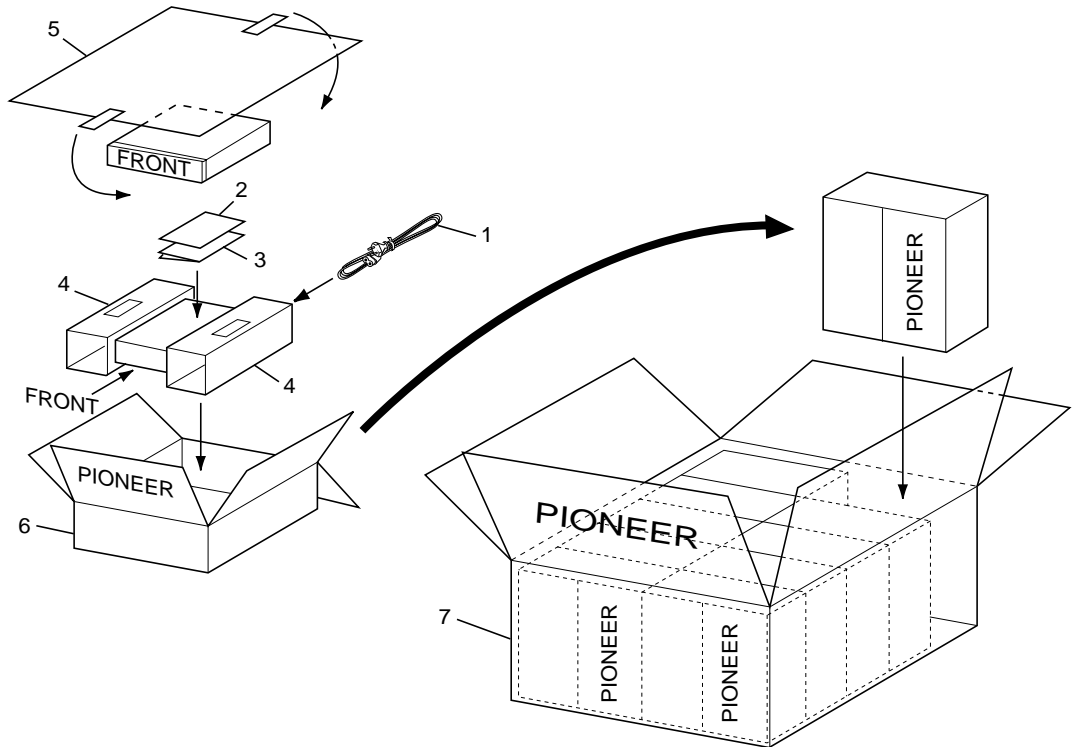
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

# 2. EXPLODED VIEWS and PARTS LIST

NOTES: ● Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.  
 ● The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.  
 ● Screws adjacent to  $\blacktriangledown$  mark on the product are used for disassembly.

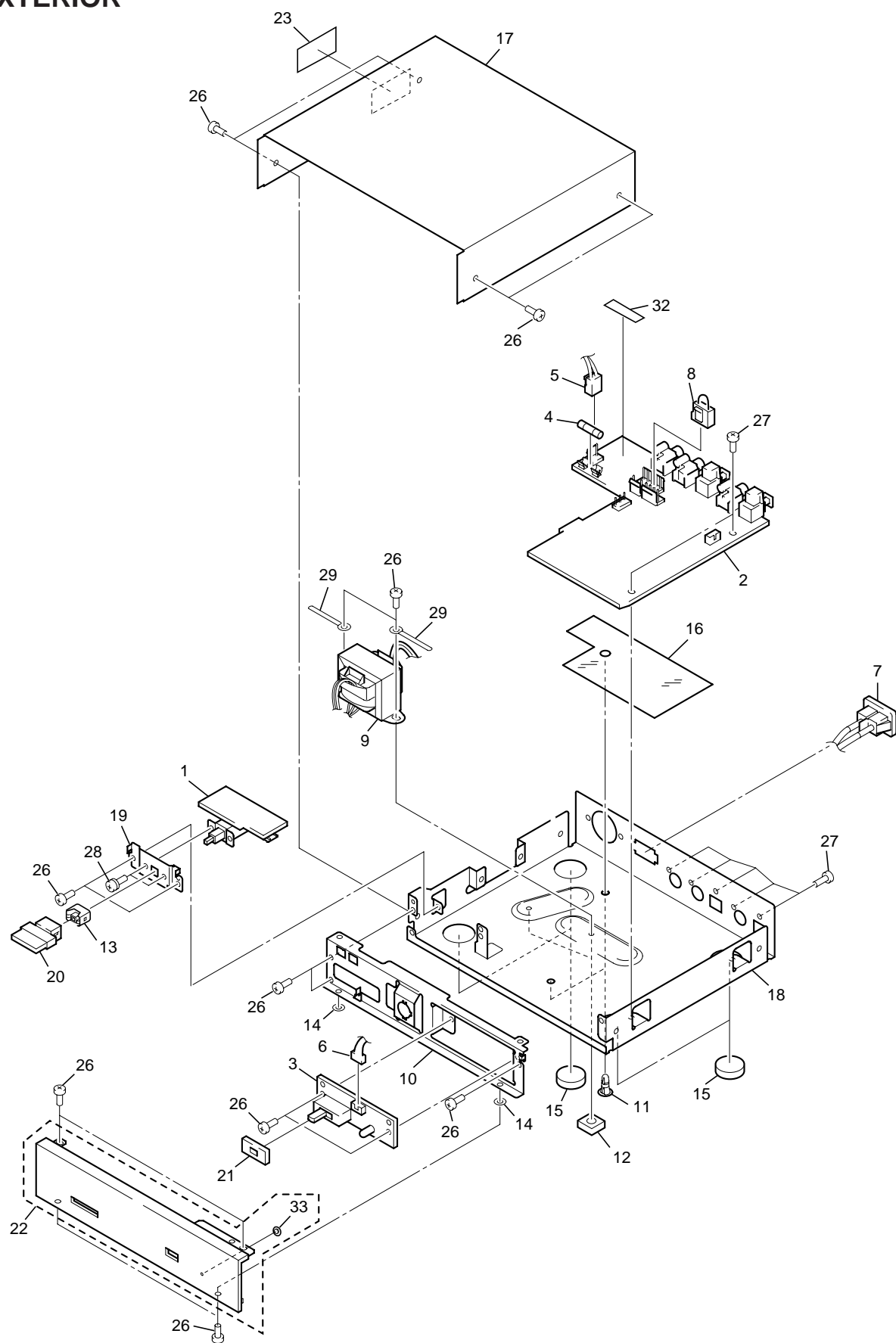
## 2.1 PACKING



## PACKING PARTS LIST

| Mark        | No. | Description  | Part No. |
|-------------|-----|--|----------|
| $\triangle$ | 1   | Power Cord   | ADG1127  |
| NSP         | 2   | Warranty Card  | ARY7022  |
|             | 3   | Operating Instructions<br>(English/French/German/Italian<br>/Dutch/Swedish/Spanish/Portuguese) | ARE7212  |
|             | 4   | Protector  | DHA1235  |
|             | 5   | Packing Sheet  | RHC1050  |
|             | 6   | Packing Case   | AHG7058  |
|             | 7   | Master Carton  | AHG7060  |

2.2 EXTERIOR

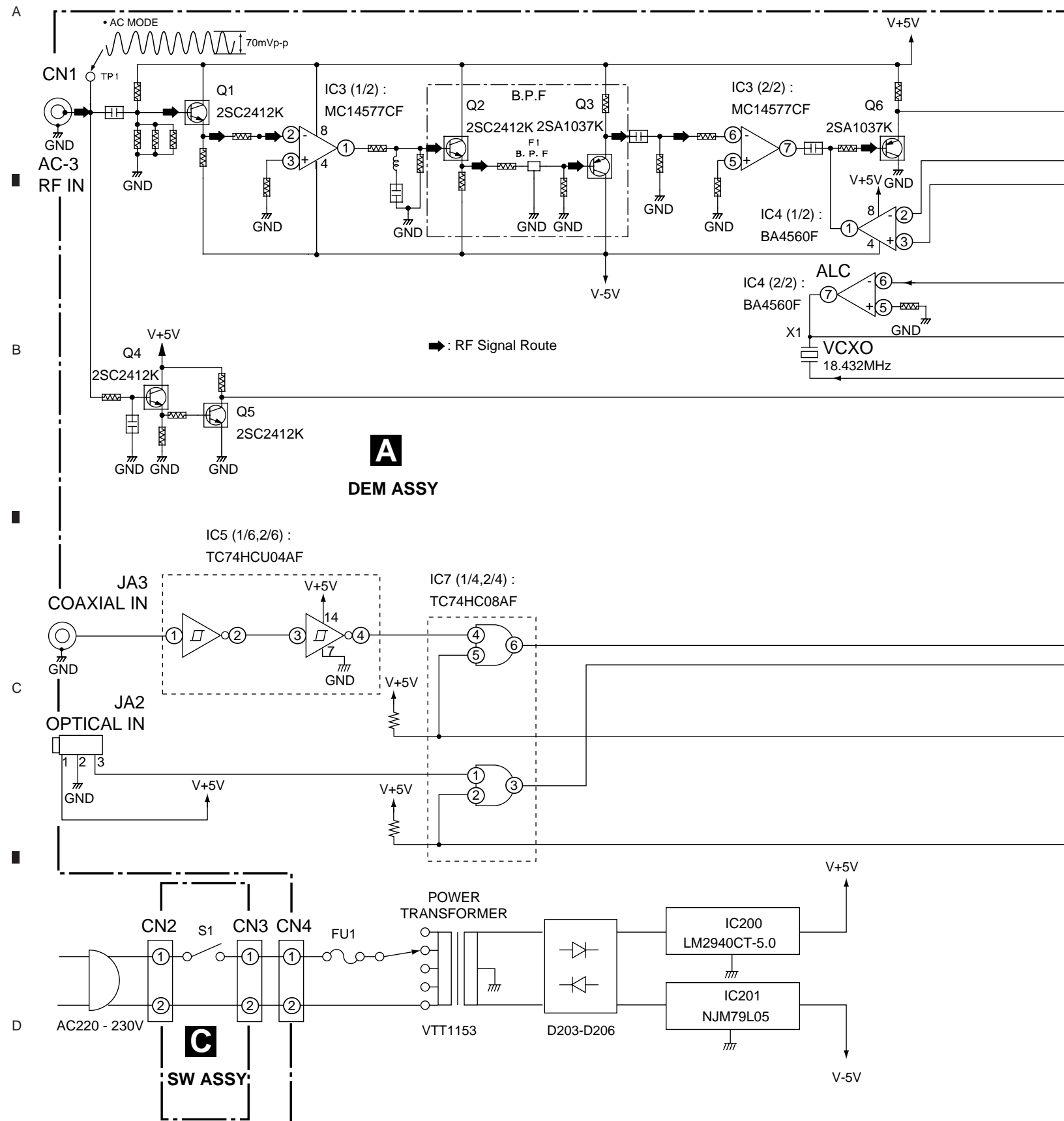


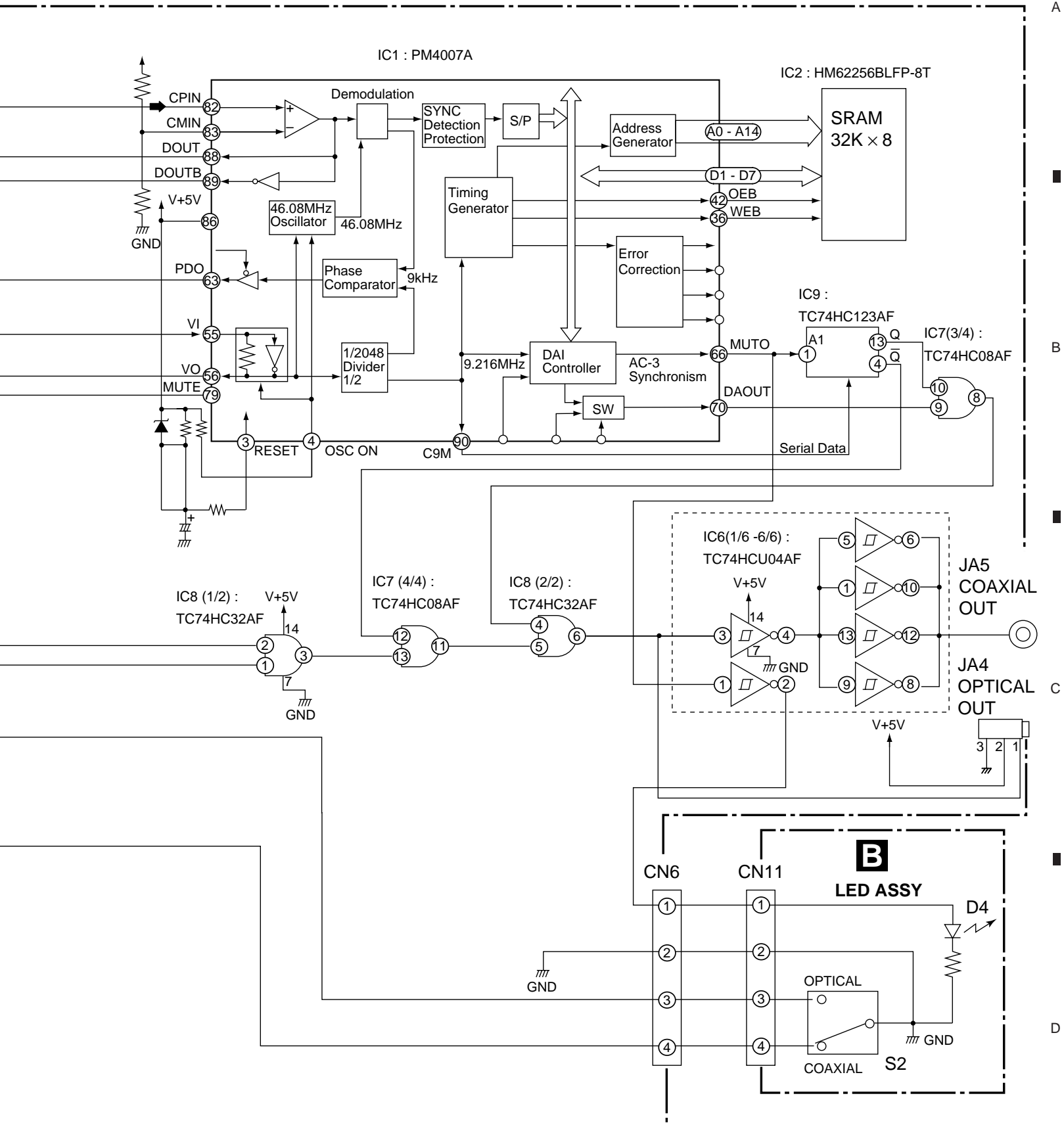
**(1) EXTERIOR PARTS LIST**

| Mark             | No. | Description                       | Part No. | Mark | No. | Description      | Part No.     |
|------------------|-----|-----------------------------------|----------|------|-----|------------------|--------------|
| NSP<br>△<br>△    | 1   | SW Assy                           | VWR1303  |      | 21  | Cushion          | AEC7225      |
|                  | 2   | DEM Assy                          | VWV1601  |      | 22  | Front Panel Assy | AXA7072      |
|                  | 3   | LED Assy                          | VWY1048  |      | 23  | Caution Label    | ARW7036      |
|                  | 4   | Fuse (FU1: T250mA)                | AEK1048  |      | 24  | ••••••••         |              |
|                  | 5   | Housing Assy (3P)                 | VKP2178  |      | 25  | ••••••••         |              |
| △<br>△<br>△<br>△ | 6   | Housing Assy (4P)                 | VKP2179  |      | 26  | Screw            | BBZ30P060FZK |
|                  | 7   | AC Inlet Assy                     | VKP2183  |      | 27  | Screw            | BBZ30P080FCC |
|                  | 8   | Housing Assy (7P)                 | AKP7037  |      | 28  | Screw            | PMA30P060FMC |
|                  | 9   | Power Transformer<br>(AC220-230V) | VT1153   | NSP  | 29  | Cord Stopper     | ZCB-069Z     |
| NSP              | 10  | Front Stay                        | DND1140  |      | 30  | ••••••••         |              |
|                  | 11  | Locking Card Spacer               | ONK1035  |      | 31  | ••••••••         |              |
|                  | 12  | Disc Guard                        | PNM1245  |      | 32  | Fuse Label       | VRW1727      |
|                  | 13  | Guide Ring                        | VEC-151  |      | 33  | LED Lens         | DNK2331      |
|                  | 14  | Washer                            | VEC1254  |      |     |                  |              |
|                  | 15  | Poron Leg                         | VEC1987  |      |     |                  |              |
| NSP              | 16  | Sheet B (PVC)                     | VEC1990  |      |     |                  |              |
|                  | 17  | Bonnet Case                       | VNA1952  |      |     |                  |              |
|                  | 18  | Main Chassis                      | ANA7084  |      |     |                  |              |
|                  | 19  | SW Stay                           | VNE2148  |      |     |                  |              |
|                  | 20  | Power Knob                        | VAC1030  |      |     |                  |              |

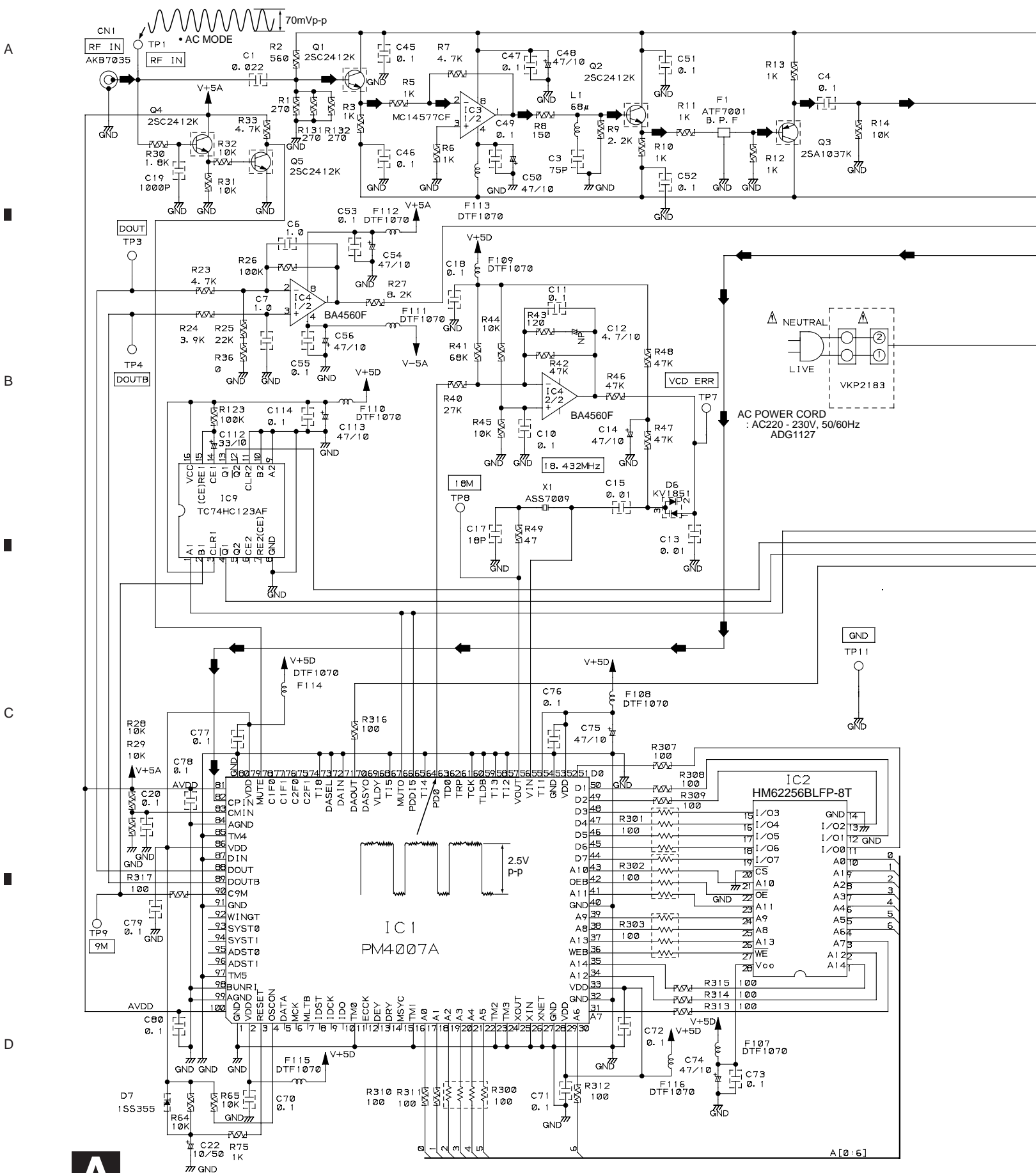
### 3. BLOCK DIAGRAM and SCHEMATIC DIAGRAM

#### 3.1 BLOCK DIAGRAM



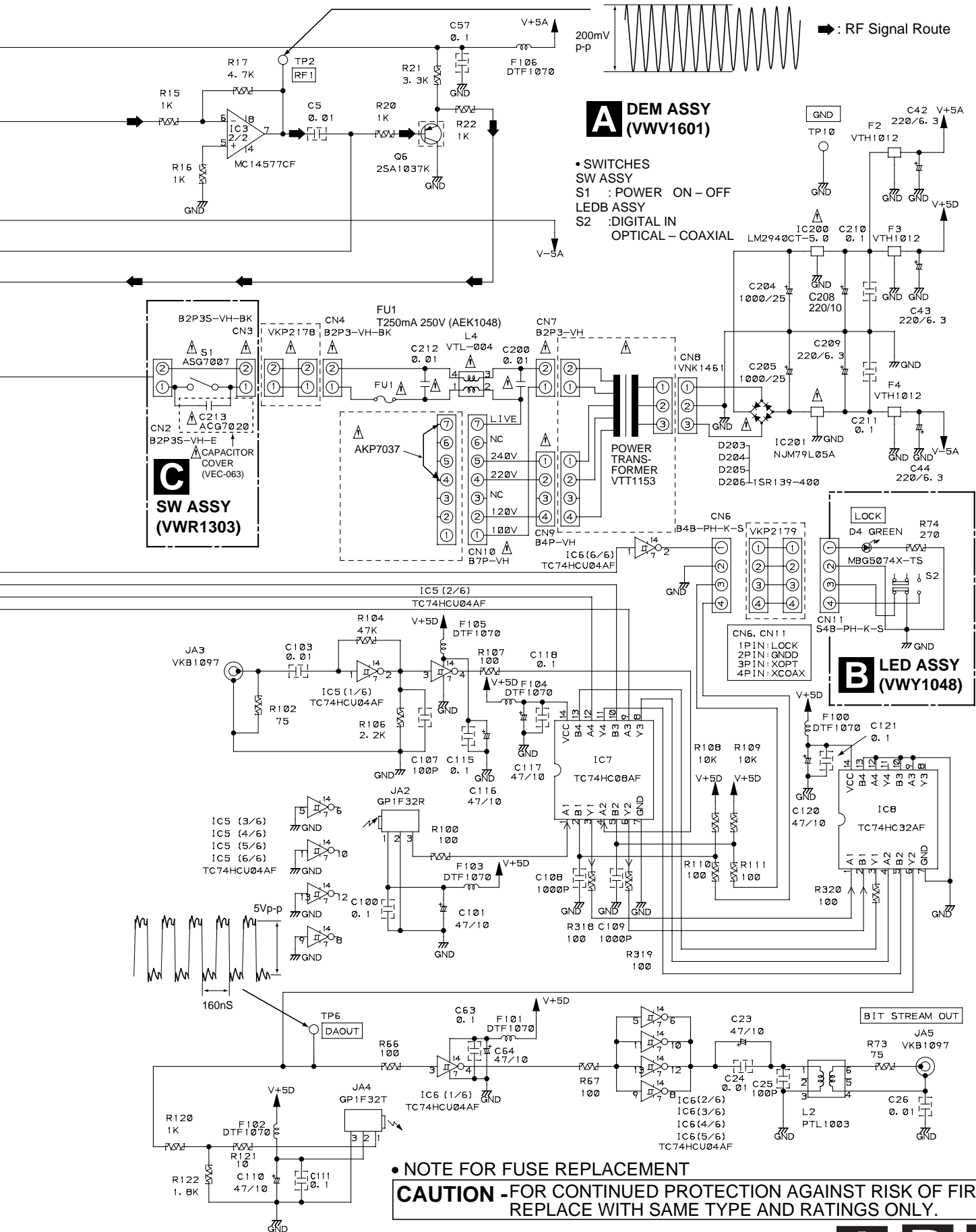


### 3.2 DEM, LED and SW ASSYS



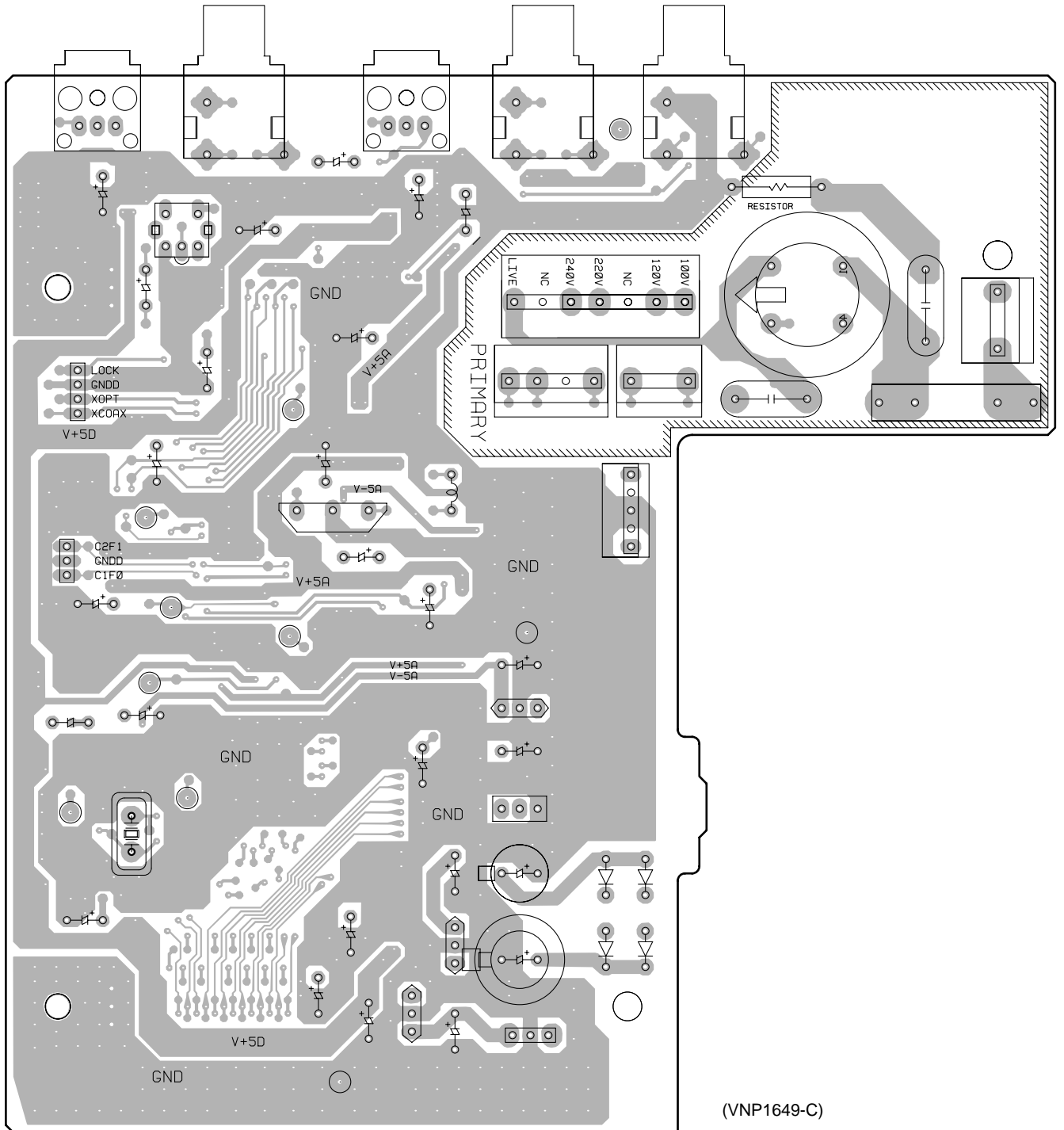


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".





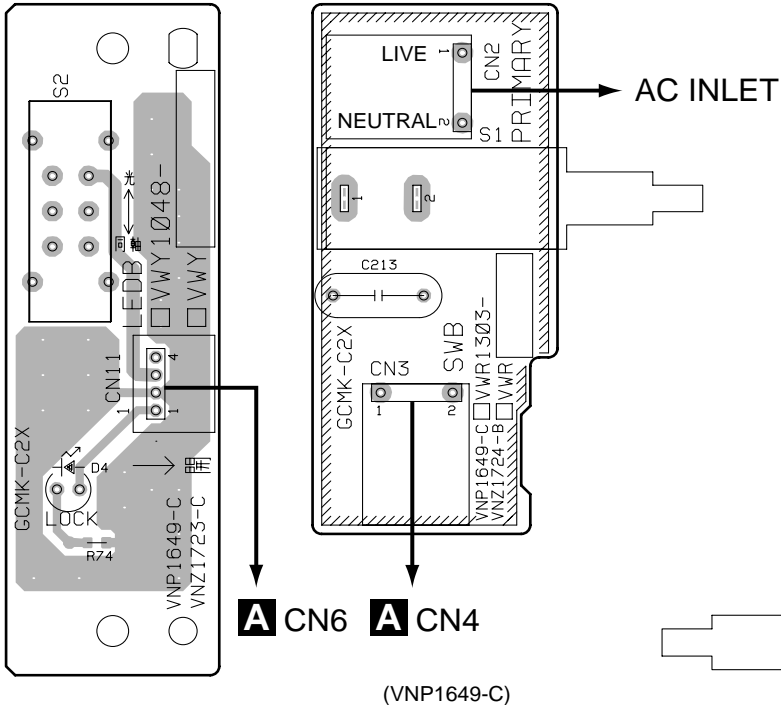
**A** DEM ASSY



**SIDE B**

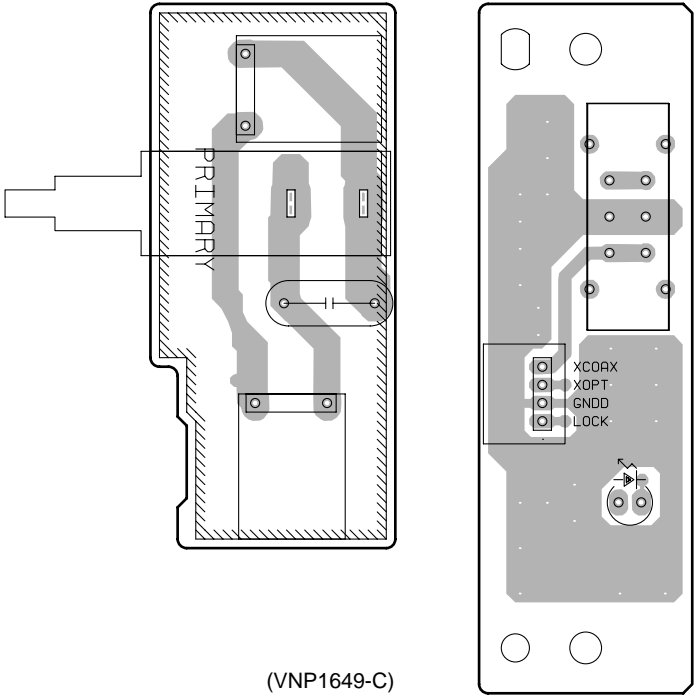
4.2 SW ASSY and LED ASSY

**B** LED ASSY      **C** SW ASSY



**SIDE A**

**C** SW ASSY      **B** LED ASSY



(VNP1649-C)

**SIDE B**

## 5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.

●The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

●When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560  $\Omega$   $\rightarrow$   $56 \times 10^1$   $\rightarrow$  561 ..... RD1/4PU  $\boxed{5} \boxed{6} \boxed{1} J$   
 47k  $\Omega$   $\rightarrow$   $47 \times 10^3$   $\rightarrow$  473 ..... RD1/4PU  $\boxed{4} \boxed{7} \boxed{3} J$   
 0.5  $\Omega$   $\rightarrow$  R50 ..... RN2H  $\boxed{R} \boxed{5} \boxed{0} K$   
 1  $\Omega$   $\rightarrow$  1R0 ..... RS1P  $\boxed{1} \boxed{R} \boxed{0} K$

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k  $\Omega$   $\rightarrow$   $562 \times 10^1$   $\rightarrow$  5621 ..... RN1/4PC  $\boxed{5} \boxed{6} \boxed{2} \boxed{1} F$

| Mark | No. | Description | Part No. | Mark | No. | Description | Part No. |
|------|-----|-------------|----------|------|-----|-------------|----------|
|------|-----|-------------|----------|------|-----|-------------|----------|

### LIST OF ASSEMBLIES

|     |            |         |
|-----|------------|---------|
| NSP | AC3B ASSY  | VWM1830 |
|     | └ SW ASSY  | VWR1303 |
|     | └ DEM ASSY | VWV1601 |
| NSP | └ LED ASSY | VWY1048 |

### A DEM ASSY

#### SEMICONDUCTORS

|          |       |                |
|----------|-------|----------------|
|          | IC4   | BA4560F        |
|          | IC2   | HM62256BLFP-8T |
| $\Delta$ | IC200 | LM2940CT-5.0   |
|          | IC3   | MC14577CF      |
| $\Delta$ | IC201 | NJM79L05A      |

|  |         |             |
|--|---------|-------------|
|  | IC1     | PM4007A     |
|  | IC7     | TC74HC08AF  |
|  | IC9     | TC74HC123AF |
|  | IC8     | TC74HC32AF  |
|  | IC5,IC6 | TC74HCU04AF |

|          |             |            |
|----------|-------------|------------|
|          | Q3,Q6       | 2SA1037K   |
|          | Q1,Q2,Q4,Q5 | 2SC2412K   |
| $\Delta$ | D203-D206   | 1SR139-400 |
|          | D7          | 1SS355     |
|          | D6          | KV1851     |

#### COILS AND FILTERS

|  |                     |         |
|--|---------------------|---------|
|  | F1 BPF              | ATF7001 |
|  | F100-F116 CHIP BEAD | DTF1070 |
|  | L1                  | LAU680J |
|  | L2 PULSE TRANS.     | PTL1003 |
|  | F2-F4 EMI FILTER    | VTH1012 |

|          |                |         |
|----------|----------------|---------|
| $\Delta$ | L4 LINE FILTER | VTL-004 |
|----------|----------------|---------|

#### CAPACITORS

|          |                                 |              |
|----------|---------------------------------|--------------|
| $\Delta$ | C200,C212 (0.01 $\mu$ F/AC250V) | ACG7020      |
|          | C107,C25                        | CCSQCH101J50 |
|          | C17                             | CCSQCH180J50 |
|          | C3                              | CCSQCH750J50 |
|          | C108,C109,C19                   | CCSQSL102J50 |

|  |              |             |
|--|--------------|-------------|
|  | C12          | CEANP470M10 |
|  | C22          | CEAT100M50  |
|  | C205         | CEAT102M25  |
|  | C209,C42-C44 | CEAT221M6R3 |
|  | C112         | CEAT330M16  |

|  |                          |             |
|--|--------------------------|-------------|
|  | C101,C110,C113,C116,C117 | CEAT470M10  |
|  | C120,C14,C23,C48,C50     | CEAT470M10  |
|  | C54,C56,C64,C74,C75      | CEAT470M10  |
|  | C204                     | CEHAQ102M25 |
|  | C208                     | CEHAQ221M10 |

|  |                         |              |
|--|-------------------------|--------------|
|  | C103,C13,C15,C24,C26    | CKSQYF103Z50 |
|  | C5                      | CKSQYF103Z50 |
|  | C10,C100,C11,C111       | CKSQYF104Z25 |
|  | C114,C115,C118,C121,C18 | CKSQYF104Z25 |
|  | C20,C210,C211,C4        | CKSQYF104Z25 |

|  |                     |              |
|--|---------------------|--------------|
|  | C45-C47,C49,C51-C53 | CKSQYF104Z25 |
|  | C55,C57,C63,C70-C73 | CKSQYF104Z25 |
|  | C76-C80             | CKSQYF104Z25 |
|  | C6,C7               | CKSQYF105Z16 |
|  | C1                  | CKSQYF223Z50 |

#### RESISTORS

|  |                 |  |
|--|-----------------|--|
|  | R300-R303       | RA4C101J                               |
|  | Other Resistors | RS1/10S $\square\square\square\square$ |

#### OTHERS

|          |                                   |            |
|----------|-----------------------------------|------------|
|          | X1 CRYSTAL OSCILLATOR (18.432MHz) | ASS7009    |
|          | CN1 PIN JACK(1P)                  | AKB7035    |
|          | H1,H2 FUSE CLIP                   | AKR1003    |
| $\Delta$ | CN7 2P CONNECTOR                  | B2P3-VH    |
| $\Delta$ | CN4 2P CONNECTOR                  | B2P3-VH-BK |

|          |                              |            |
|----------|------------------------------|------------|
| $\Delta$ | CN6 KR CONNECTOR             | B4B-PH-K-S |
| $\Delta$ | CN9 4P TOP POST              | B4P-VH     |
| $\Delta$ | CN10 7P CONNECTOR            | B7P-VH     |
|          | JA2 OPTICAL RECEPTION MODULE | GP1F32R    |
|          | JA4 OPTICAL LINK OUT         | GP1F32T    |

|  |                             |         |
|--|-----------------------------|---------|
|  | JA3,JA5 1P PIN JACK         | VKB1097 |
|  | CN8 3P TOP POST             | VKN1461 |
|  | KN1,KN2 EARTH METAL FITTING | VNF1084 |

### B LED ASSY

#### SEMICONDUCTORS

|  |    |          |
|--|----|----------|
|  | D4 | MBG5074X |
|--|----|----------|

#### SWITCH

|  |    |         |
|--|----|---------|
|  | S2 | DSH1036 |
|--|----|---------|

#### RESISTORS

|  |               |  |
|--|---------------|--|
|  | All Resistors | RS1/10S $\square\square\square\square$ |
|--|---------------|--|

#### OTHERS

|  |                   |            |
|--|-------------------|------------|
|  | CN11 KR CONNECTOR | S4B-PH-K-S |
|--|-------------------|------------|

### C SW ASSY

#### SWITCH

|          |    |         |
|----------|----|---------|
| $\Delta$ | S1 | ASG7007 |
|----------|----|---------|

#### CAPACITOR

|          |                            |         |
|----------|----------------------------|---------|
| $\Delta$ | C213 (0.01 $\mu$ F/AC250V) | ACG7020 |
|----------|----------------------------|---------|

#### OTHERS

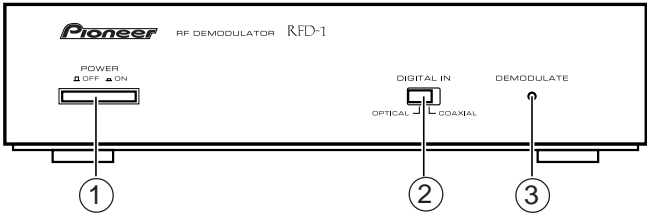
|          |                  |             |
|----------|------------------|-------------|
| $\Delta$ | CN3 2P CONNECTOR | B2P3S-VH-BK |
| $\Delta$ | CN2 2P CONNECTOR | B2P3S-VH-E  |
| $\Delta$ | CAPACITOR COVER  | VEC-063     |

6. ADJUSTMENT

There is no information to be shown in this chapter.

7. PANEL FACILITIES AND SPECIFICATIONS

PANEL FACILITIES



- ① **POWER switch**  
Provides electrical power to the unit.
- ② **DIGITAL IN switch**  
Use to select which of the DIGITAL IN terminals to use (either COAXIAL or OPTICAL).
- ③ **DEMODULATE indicator**  
When lighted, indicates that the input signal supplied to the Dolby Digital (AC-3) RF IN terminal is being demodulated.

"Dolby", "Digital (AC-3)" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

SPECIFICATIONS

**General**

|                          |                               |
|--------------------------|-------------------------------|
| Power requirements ..... | AC 220-230 V, 50/60 Hz        |
| Power consumption .....  | 6 W                           |
| Weight .....             | 1.1 kg                        |
| Dimensions .....         | 202 (W) × 194 (D) × 50 (H) mm |

- Accessories**
- Operating instructions ..... 1
  - Power cord ..... 1

**NOTE:**  
Specifications and design are subject to possible modification without notice.

**Accessories**

Power cord

(ADG1127)